Pushing the Envelope			
2000 Mathematics			
Academic Standards			
Indiana Mathematics			
Grade 5			
Activity/Lesson	**State**	**Standards**	
Physics and Math (pgs. 43-63)	IN	MA.5.5.3.1	Students use variables in simple expressions, compute the value of an expression for specific values of the variable, and plot and interpret the results. They use two-dimensional coordinate grids to represent points and graph lines. Use a variable to represent an unknown number.
Pushing the Envelope			
2000 Mathematics			
Academic Standards			
Indiana Mathematics			
Grade 6			
Activity/Lesson	**State**	**Standards**	
History of Aviation Propulsion (pgs. 5-9)	IN	MA.6.6.5.1	Students deepen their understanding of the measurement of plane and solid shapes and use this understanding to solve problems. They calculate with temperature and money, and choose appropriate units of measure in other areas. Select and apply appropriate standard units and tools to measure length, area, volume, weight, time, temperature, and the size of angles.
Types of Engines (pgs. 11-23)	IN	MA.6.6.3.2	Students write verbal expressions and sentences as algebraic expressions and equations. They evaluate algebraic expressions, solve simple linear equations, and graph and interpret their results. They investigate geometric relationships and describe them algebraically. Write and use formulas with up to three variables to solve problems.
Chemistry (pgs. 25-41)	IN	MA.6.6.3.2	Students write verbal expressions and sentences as algebraic expressions and equations. They evaluate algebraic expressions, solve simple linear equations, and graph and interpret their results. They investigate geometric relationships and describe them algebraically. Write and use formulas with up to three variables to solve problems.

Chemistry (pgs. 25-41)	IN	MA.6.6.5.1	Students deepen their understanding of the measurement of plane and solid shapes and use this understanding to solve problems. They calculate with temperature and money, and choose appropriate units of measure in other areas. Select and apply appropriate standard units and tools to measure length, area, volume, weight, time, temperature, and the size of angles.
Physics and Math (pgs. 43-63)	IN	MA.6.6.2.6	Students solve problems involving addition, subtraction, multiplication, and division of integers. They solve problems involving fractions, decimals, ratios, proportions, and percentages. Interpret and use ratios to show the relative sizes of two quantities. Use the notations: a/b, a to b, a:b.
Physics and Math (pgs. 43-63)	IN	MA.6.6.3.2	Students write verbal expressions and sentences as algebraic expressions and equations. They evaluate algebraic expressions, solve simple linear equations, and graph and interpret their results. They investigate geometric relationships and describe them algebraically. Write and use formulas with up to three variables to solve problems.
Physics and Math (pgs. 43-63)	IN	MA.6.6.3.5	Students write verbal expressions and sentences as algebraic expressions and equations. They evaluate algebraic expressions, solve simple linear equations, and graph and interpret their results. They investigate geometric relationships and describe them algebraically. Use variables in expressions describing geometric quantities.
Physics and Math (pgs. 43-63)	IN	MA.6.6.3.9	Students write verbal expressions and sentences as algebraic expressions and equations. They evaluate algebraic expressions, solve simple linear equations, and graph and interpret their results. They investigate geometric relationships and describe them algebraically. Investigate how a change in one variable relates to a change in a second variable.
Rocket Activity (pgs. 69-75)	IN	MA.6.6.3.2	Students write verbal expressions and sentences as algebraic expressions and equations. They evaluate algebraic expressions, solve simple linear equations, and graph and interpret their results. They investigate geometric relationships and describe them algebraically. Write and use formulas with up to three variables to solve problems.
Pushing the Envelope			

2000 Mathematics Academic Standards			
Indiana Mathematics			
Grade 7			
Activity/Lesson	**State**	**Standards**	
History of Aviation Propulsion (pgs. 5-9)	IN	MA.7.7.5.1	Students compare units of measure and use similarity to solve problems. They compute the perimeter, area, and volume of common geometric objects and use the results to find measures of less regular objects. Compare lengths, areas, volumes, weights, capacities, times, and temperatures within measurement systems.
Types of Engines (pgs. 11-23)	IN	MA.7.7.3.1	Students express quantitative relationships using algebraic terminology, expressions, equations, inequalities, and graphs. Use variables and appropriate operations to write an expression, a formula, an equation, or an inequality that represents a verbal description.
Chemistry (pgs. 25-41)	IN	MA.7.7.3.1	Students express quantitative relationships using algebraic terminology, expressions, equations, inequalities, and graphs. Use variables and appropriate operations to write an expression, a formula, an equation, or an inequality that represents a verbal description.
Chemistry (pgs. 25-41)	IN	MA.7.7.5.4	Students compare units of measure and use similarity to solve problems. They compute the perimeter, area, and volume of common geometric objects and use the results to find measures of less regular objects. Use formulas for finding the perimeter and area of basic two-dimensional shapes and the surface area and volume of basic three-dimensional shapes, including rectangles, parallelograms, trapezoids, triangles, circles, right prisms, and cylinders.
Physics and Math (pgs. 43-63)	IN	MA.7.7.3.2	Students express quantitative relationships using algebraic terminology, expressions, equations, inequalities, and graphs. Write and solve two-step linear equations and inequalities in one variable and check the answers.
Physics and Math (pgs. 43-63)	IN	MA.7.7.3.3	Students express quantitative relationships using algebraic terminology, expressions, equations, inequalities, and graphs. Use correct algebraic terminology, such as variable, equation, term, coefficient, inequality, expression, and constant.
Physics and Math (pgs. 43-63)	IN	MA.7.7.3.5	Students express quantitative relationships using algebraic terminology, expressions, equations, inequalities, and graphs. Solve an equation or formula with two variables for a particular variable.

Physics and Math (pgs. 43-63)	IN	MA.7.7.3.10	Students express quantitative relationships using algebraic terminology, expressions, equations, inequalities, and graphs. Identify and describe situations with constant or varying rates of change and know that a constant rate of change describes a linear function.
Rocket Activity (pgs. 69-75)	IN	MA.7.7.3.1	Students express quantitative relationships using algebraic terminology, expressions, equations, inequalities, and graphs. Use variables and appropriate operations to write an expression, a formula, an equation, or an inequality that represents a verbal description.
Pushing the Envelope			
2000 Mathematics			
Academic Standards			
Indiana Mathematics			
Grade 8			
Activity/Lesson	**State**	**Standards**	
History of Aviation Propulsion (pgs. 5-9)	IN	MA.8.8.5.1	Students convert between units of measure and use rates and scale factors to solve problems. They compute the perimeter, area, and volume of geometric objects. They investigate how perimeter, area, and volume are affected by changes of scale. Convert common measurements for length, area, volume, weight, capacity, and time to equivalent measurements within the same system.
Types of Engines (pgs. 11-23)	IN	MA.8.8.3.9	Students solve simple linear equations and inequalities. They interpret and evaluate expressions involving integer powers. They graph and interpret functions. They understand the concepts of slope and rate. Represent simple quadratic functions using verbal descriptions, tables, graphs, and formulas and translate among these representations.
Types of Engines (pgs. 11-23)	IN	MA.8.8.5.2	Students convert between units of measure and use rates and scale factors to solve problems. They compute the perimeter, area, and volume of geometric objects. They investigate how perimeter, area, and volume are affected by changes of scale. Solve simple problems involving rates and derived measurements for attributes such as velocity and density.

Chemistry (pgs. 25-41)	IN	MA.8.8.3.9	Students solve simple linear equations and inequalities. They interpret and evaluate expressions involving integer powers. They graph and interpret functions. They understand the concepts of slope and rate. Represent simple quadratic functions using verbal descriptions, tables, graphs, and formulas and translate among these representations.
Chemistry (pgs. 25-41)	IN	MA.8.8.5.1	Students convert between units of measure and use rates and scale factors to solve problems. They compute the perimeter, area, and volume of geometric objects. They investigate how perimeter, area, and volume are affected by changes of scale. Convert common measurements for length, area, volume, weight, capacity, and time to equivalent measurements within the same system.
Chemistry (pgs. 25-41)	IN	MA.8.8.5.3	Students convert between units of measure and use rates and scale factors to solve problems. They compute the perimeter, area, and volume of geometric objects. They investigate how perimeter, area, and volume are affected by changes of scale. Solve problems involving scale factors, area, and volume using ratio and proportion.
Physics and Math (pgs. 43-63)	IN	MA.8.8.3.1	Students solve simple linear equations and inequalities. They interpret and evaluate expressions involving integer powers. They graph and interpret functions. They understand the concepts of slope and rate. Write and solve linear equations and inequalities in one variable, interpret the solution or solutions in their context, and verify the reasonableness of the results.
Physics and Math (pgs. 43-63)	IN	MA.8.8.3.9	Students solve simple linear equations and inequalities. They interpret and evaluate expressions involving integer powers. They graph and interpret functions. They understand the concepts of slope and rate. Represent simple quadratic functions using verbal descriptions, tables, graphs, and formulas and translate among these representations.
Rocket Activity (pgs. 69-75)	IN	MA.8.8.3.9	Students solve simple linear equations and inequalities. They interpret and evaluate expressions involving integer powers. They graph and interpret functions. They understand the concepts of slope and rate. Represent simple quadratic functions using verbal descriptions, tables, graphs, and formulas and translate among these representations.
Pushing the Envelope			

2000 Mathematics Academic Standards			
Indiana Mathematics			
Grades 9-12 (Algebra I)			
Activity/Lesson	**State**	**Standards**	
Types of Engines (pgs. 11-23)	IN	MA.9-12.A1.2.2	Students solve linear equations and inequalities in one variable. They solve word problems that involve linear equations, inequalities, or formulas. Solve equations and formulas for a specified variable.
Types of Engines (pgs. 11-23)	IN	MA.9-12.A1.2.6	Students solve linear equations and inequalities in one variable. They solve word problems that involve linear equations, inequalities, or formulas. Solve word problems that involve linear equations, formulas, and inequalities.
Chemistry (pgs. 25-41)	IN	MA.9-12.A1.2.2	Students solve linear equations and inequalities in one variable. They solve word problems that involve linear equations, inequalities, or formulas. Solve equations and formulas for a specified variable.
Chemistry (pgs. 25-41)	IN	MA.9-12.A1.2.6	Students solve linear equations and inequalities in one variable. They solve word problems that involve linear equations, inequalities, or formulas. Solve word problems that involve linear equations, formulas, and inequalities.
Physics and Math (pgs. 43-63)	IN	MA.9-12.A1.2.2	Students solve linear equations and inequalities in one variable. They solve word problems that involve linear equations, inequalities, or formulas. Solve equations and formulas for a specified variable.
Physics and Math (pgs. 43-63)	IN	MA.9-12.A1.2.6	Students solve linear equations and inequalities in one variable. They solve word problems that involve linear equations, inequalities, or formulas. Solve word problems that involve linear equations, formulas, and inequalities.
Physics and Math (pgs. 43-63)	IN	MA.9-12.A1.4.5	Students graph linear equations and inequalities in two variables. They write equations of lines and find and use the slope and y-intercept of lines. They use linear equations to model real data. Write the equation of a line that models a data set and use the equation (or the graph of the equation) to make predictions. Describe the slope of the line in terms of the data, recognizing that the slope is the rate of change.
Physics and Math (pgs. 43-63)	IN	MA.9-12.A1.9.4	Understand that the logic of equation solving begins with the assumption that the variable is a number that satisfies the equation, and that the steps taken when solving equations create new equations that have, in most cases, the same solution set as the original. Understand that similar logic applies to solving systems of equations simultaneously.

Rocket Activity (pgs. 69-75)	IN	MA.9-12.A1.2.2	Students solve linear equations and inequalities in one variable. They solve word problems that involve linear equations, inequalities, or formulas. Solve equations and formulas for a specified variable.
Rocket Activity (pgs. 69-75)	IN	MA.9-12.A1.2.6	Students solve linear equations and inequalities in one variable. They solve word problems that involve linear equations, inequalities, or formulas. Solve word problems that involve linear equations, formulas, and inequalities.